UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,717	03/07/2001	Martin W. McKinnon III	10263-32045	5106

5642 7590 11/16/2006

SCIENTIFIC-ATLANTA, INC.
INTELLECTUAL PROPERTY DEPARTMENT
5030 SUGARLOAF PARKWAY
LAWRENCEVILLE, GA 30044

EXAMINER	
MATTIS, JASON E	
ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SF

Office Action Summary	Application No.	Applicant(s)
	09/800,717	MCKINNON ET AL.
	Examiner	Art Unit
	Jason E. Mattis	2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 August 2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 and 31-64 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 and 31-64 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the amendment filed 8/28/06. Due to the amendment, the previous claim objections have been withdrawn. Claims 1-29 and 31-64 are currently pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 6, 8-11, 13, 15-25, 46-54, 28-31, 33-37, 39-40, 42-54, 57-59, 61, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. (U.S. Pat. 6671724) in view of Aras et al. (U.S. Pat. 5884037).

With respect to claim 1, Pandya et al. discloses a method of providing access across a shared communications medium in a downstream direction towards competing users **(See column 4 lines 22-29 and Figure 2 of Pandya et al. for reference to a method of managing network resources across a shared communications medium in a downstream direction)**. Pandya et al. also discloses monitoring access usage by at least one user during a time interval **(See column 15 lines 46-58 of**

Pandya et al. for reference to monitoring and reporting the amount of bandwidth used by a user device during a prior time period). Pandya et al. also discloses forecasting downstream network access usage by the at least one user during a future time interval based on the monitored network access usage by the at least one user and a forecast function **(See column 16 line 29 to column 17 line 4 and Figure 11A of Pandya et al. for reference to based on monitored usage, UB, forecasting, using a forecast function, that a user will need more network access, as in step S6 where it is determined that the used bandwidth and maximum allocated bandwidth are approximately equal with the fair share bandwidth being more than the maximum allocated bandwidth, or forecasting, using a forecast function, that a user will need less network access, as in step S8 where it is determined that the used bandwidth is less that the maximum allocated bandwidth).** Pandya et al. further discloses based on the forecasting, allocating network access to each user on a per user basis for a future time interval **(See column 16 line 28 to column 18 line 17 and Figures 11A-11D of Pandya et al. for reference to methods of dynamically allocated bandwidth to users based on the monitored bandwidth UB and forecasted bandwidth for a future time period).** Pandya et al. does not disclose determining whether the at least one user has been previously assigned a forecast function and, if not, assigning a forecast function to the at least one user.

With respect to claim 1, Aras et al., in the field of communications discloses determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user **(See column 4 line 33 to column 5 line**

25 of Aras et al. for reference to using an ARIMA model to predict bandwidth allocations and for reference to if no previous trend data is known, meaning no previous prediction function has been assigned, choosing the terms of the prediction function using trial and error thereby, assigning a prediction function). Determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user has the advantage of allowing new users to be added to bandwidth prediction calculations dynamically during system operation.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Aras et al., to combine determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user, as suggested by Aras et al., with the system and method of Pandya et al., with the motivation being to allow new users to be added to bandwidth prediction calculations dynamically during system operation.

With respect to claim 39, Pandya et al. discloses a method of providing network access across a shared communications medium between competing users **(See column 4 lines 22-29 and Figure 2 of Pandya et al. for reference to a method of managing network resources of users across a shared communications medium).** Pandya et al. also discloses monitoring network access usage by at least one user during a time interval **(See column 15 lines 46-58 of Pandya et al. for reference to monitoring and reporting the amount of bandwidth used by a user device during a prior time period).** Pandya et al. further discloses forecasting upstream and downstream network access usage by the at least one user during a future time interval

based on the monitored network access usage by the at least one user **(See column 16 line 29 to column 17 line 4 and Figure 11A of Pandya et al. for reference to based on monitored usage, UB, forecasting that a user will need more network access, as in step S6 where it is determined that the used bandwidth and maximum allocated bandwidth are approximately equal with the fair share bandwidth being more than the maximum allocated bandwidth, or forecasting that a user will need less network access, as in step S8 where it is determined that the used bandwidth is less that the maximum allocated bandwidth).** Pandya et al. further discloses based on the forecasting, allocating network access to the at least one user for the future time interval **(See column 16 line 28 to column 18 line 17 and Figures 11A-11D of Pandya et al. for reference to methods of dynamically allocated bandwidth to users based on the monitored bandwidth UB and forecasted bandwidth for a future time period).** Pandya et al. does not disclose determining whether the at least one user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user and executing a seasonal identifier algorithm.

With respect to claim 39, Aras et al., in the field of communications discloses determining whether a user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user and executing a seasonal identifier algorithm **(See column 4 line 33 to column 5 line 25 of Aras et al. for reference to determining that a previous ARIMA model has been used and for reference to using previous trends to periodically repeat the calculation of ARIMA model function to adjust the terms used in the function based on the latest**

seasonal information). Determining whether a user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user and executing a seasonal identifier algorithm has the advantage of making sure that the seasonal information used to determine a forecast function is up-to-date such that the function used more accurately represents the most current operating environment.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Aras et al., to combine determining whether a user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user, and executing a seasonal identifier algorithm, as suggested by Aras et al., with the system and method of Pandya et al., with the motivation being to make sure that the seasonal information used to determine a forecast function is up-to-date such that the function used more accurately represents the most current operating environment.

With respect to claim 2, Pandya et al. discloses that network access comprises bandwidth across the shared communications medium for consumption by each user **(See column 15 lines 46-58 of Pandya et al. for reference to monitoring the amount of bandwidth used by each user).**

With respect to claims 3 and 61, Pandya et al. discloses that network access allocation represents a bandwidth allowance of a respective user during the future time interval **(See column 15 lines 46-58 of Pandya et al. for reference to the bandwidth CB being a user's "fair share" of available bandwidth, and thus a bandwidth allowance for the upcoming cycle).**

With respect to claims 4 and 62, Pandya et al. discloses that network access allocation represents bandwidth utilized by each user during the future time interval **(See column 15 lines 46-58 of Pandya et al. for reference to the bandwidth CB being the expected amount, or "fair share" amount, of bandwidth a user will use in the upcoming cycle)**.

With respect to claim 6, Pandya et al. discloses that the time interval for which network access usage is monitored and the future time interval are equal in length **(See column 21 lines 39-54 of Pandya et al. for reference to the default interval for recalculating bandwidth allocations being 5 seconds, meaning that at equal 5 second intervals the bandwidth is monitored and then the future bandwidth allowance is calculated for the next 5 second interval)**.

With respect to claims 8-9, Pandya et al. discloses collecting data representative of logic data units and the number of bytes and data packets transmitted to each user during a time interval **(See column 15 lines 23-58 of Pandya et al. for reference to monitoring and reporting the amount of bandwidth used by each user, which is the same as collecting data representative of a number of logic data units transmitted during a time interval since a bandwidth is always measured in units of data per time, and for reference to monitoring the amount of transmitted packets during a cycle, or time period)**.

With respect to claims 10 and 11, Pandya et al. discloses collecting data representative of the number of logical data unit, bytes, and packets of the user that are dropped during a time interval **(See column 21 lines 17-37 of Pandya et al. for**

reference to measuring the loss of a data stream to compare this loss against a minimum threshold, which means that the number of bytes and packets dropped, or lost, during a time interval is measured).

With respect to claim 13, Pandya et al. discloses that the shared communications medium is part of a Shared Access Carrier Network **(See column 3 lines 52-61 and Figure 2 of Pandya et al. for reference to the network being a shared communications medium since the devices 20 and 22 all share a common network link 24 and a common connection to router 18).**

With respect to claim 15, Pandya et al. discloses that the Shared Access Carrier Network comprises a wireless network **(See column 4 line62 to column 5 line 11 and Figure 2 of Pandya et al. for reference to the network wireless computing devices, mobile telephones, or pagers, meaning the network is a wireless communications network).**

With respect to claim 16, Pandya et al. discloses prioritizing the users for allocated network access **(See column 15 liens 1-22 of Pandya et al. for reference to re-allocation of bandwidth being based on priority data for users).**

With respect to claims 17 and 46, Pandya et al. discloses that the prioritizing is based on fairness considerations **(See column 15 lines 1-22 of Pandya et al. for reference to re-allocating user bandwidth according to priority data so that each user is allocated a fair share of the available bandwidth).**

With respect to claims 18 and 47, Pandya et al. discloses that users are prioritized based on user throughput during a time interval **(See column 16 lines 20-27**

of Pandya et al. for reference to providing bandwidth first to agents that have low allocations, meaning the bandwidth allocation is prioritized making a low throughput connection have a higher priority relative to a high throughput connection).

With respect to claims 19 and 48, Pandya et al. discloses that the users are prioritized based on data loss for each user during a time interval **(See column 21 lines 16-37 of Pandya et al. for reference to giving priority of bandwidth allocations to users that have a data loss that is above a minimum threshold).**

With respect to claims 20 and 49, Pandya et al. discloses that users are prioritized based on network access usage for a particular time of day **(See column 15 lines 1-22 of Pandya et al. for reference to priority being based on time of day).**

With respect to claims 21 and 50, Pandya et al. discloses that users are prioritized based on both user throughput and data loss of the user during a time interval **(See column 21 lines 16-37 of Pandya et al. for reference to giving priority of bandwidth allocations to users based on both a minimum bandwidth and a minimum data loss requirement).**

With respect to claims 22 and 51, Pandya et al. discloses that users are prioritized based on an established minimum quality of service standard **(See column 14 lines 52-68 of Pandya et al. for reference to allocating bandwidth using priorities based on policy-based QoS techniques by coordinating service-level enforcements).**

With respect to claims 23 and 52, Pandya et al. discloses that prioritizing is based on service level agreements of the users **(See column 14 lines 52-68 and column 21 lines 16-37 of Pandya et al. for reference to reference to allocating bandwidth using priorities based on policy-based QoS techniques by coordinating service-level enforcements and for reference to allocating bandwidth based on minimum thresholds of service level requirements for users)**.

With respect to claims 24 and 53, Pandya et al. discloses that the service level agreements specify minimum levels of network access for users and prioritizing includes comparing the monitored levels of network usage with the minimum levels of network access and giving priority when the monitored level is below the minimum level **(See column 21 lines 16-37 and Figure 11A-D of Pandya et al. for reference to setting minimum thresholds for bandwidth and giving priority to allocate more bandwidth to a user when the user bandwidth monitored falls below the minimum threshold)**.

With respect to claims 25 and 54, Pandya et al. discloses that service level agreements specify time-of-day minimum levels of network access for users and prioritizing by comparing the monitored network access usage with the minimum time-of-day levels and giving priority to users that fall below the minimum **(See column 14 lines 52 to column 15 line 22, column 21 lines 16-37, and Figures 11A-D of Pandya et al, for reference to prioritizing users based on time of day requirements and for**

reference to giving users priority access to more bandwidth when the current bandwidth is below a minimum threshold).

With respect to claims 28 and 57, Pandya et al. discloses respective credits for levels of network access and prioritizing based on each user's respective credit **(See column 21 liens 16-37 of Pandya et al. for reference to setting minimum bandwidth thresholds, which are minimum credits, for users and prioritizing based on users being below their minimum thresholds).**

With respect to claims 29 and 58, Pandya et al. discloses service level agreements specifying minimum levels of access for users and allocating access to each user's respective minimum level of network access **(See column 21 lines 16-37 of Pandya et al. for reference to allocating bandwidth to users based on a minimum bandwidth threshold for the users).**

With respect to claims 31 and 40, Pandya et al. discloses predicting future network access usage of each user based upon monitored past network access usage **(See column 15 line 46 to column 18 line 17 and Figures 11A-D of Pandya et al. for reference to predicting a future bandwidth CB based on the monitored bandwidth UB that a user has used in a previous cycle).**

With respect to claims 33 and 42, Pandya et al. discloses allocating network access to users proportional to each user's forecasted network access usage **(See column 15 line 46 to column 18 line 17 and Figures 11A-D of Pandya et al. for reference to allocating bandwidth to users proportional to each user's forecasted**

fair share bandwidth CB by either increasing or decreasing the allocated bandwidth in accordance with the fair share bandwidth).

With respect to claims 34 and 43, Pandya et al. discloses prioritizing the user for allocating network access usage **(See column 15 lines 1-22 of Pandya et al. for reference to re-allocating bandwidth for users based on priority data).**

With respect to claims 35 and 44, Pandya et al. discloses that the prioritizing is based on each user's forecasted network access usage **(See column 16 lines 4-28 of Pandya et al. for reference to allocating bandwidth in a prioritized method to each of the users based on the forecasted bandwidth CB).**

With respect to claims 36 and 45, Pandya et al. discloses that users are prioritized in increasing order of each user's forecasted network access usage **(See column 16 lines 4-28 of Pandya et al. for reference to allocating bandwidth first to users that have low allocations before allocating bandwidth to users having high allocation, meaning the users are prioritized in order from low bandwidth, CB, to high bandwidth, CB).**

With respect to claims 37 and 59, Pandya et al. discloses allocating network access to the users equal to each user's forecasted network access usage and then allocating remaining access equally to the users **(See column 16 lines 4-28 and Figures 11A-D of Pandya et al. for reference to allocating bandwidth to users to meet the fair share bandwidth, CB, and then allocating extra bandwidth equally to users in order of priority).**

4. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al. and in further view of Barnes et al. (U.S. Pat. 6529486).

With respect to claims 5 and 7, although Pandya et al. does disclose monitoring and reallocating bandwidth allocations at time intervals of 5 seconds **(See column 14 lines 52-68 of Pandya et al. for reference to monitoring and recalculating bandwidth allocations every five seconds)**, the combination of Pandya et al. and Aras et al. does not disclose monitoring in intervals of fifteen to sixty minutes with the monitored and future time interval being both one minute to sixty minutes in length.

With respect to claims 5 and 7, Barnes et al., in the field of communications, discloses monitoring traffic and producing a usage record in time periods of 6, 10, 15, 30, or 60 minutes **(See column 33 lines 11-25 of Barnes et al. for reference to the time periods of 15, 30, or 60 minutes, which are in the range of fifteen to sixty minutes)**. Using monitoring intervals of 15, 30, or 60 minutes has the advantage of having the monitoring system take up less network bandwidth since the monitored data must only be transmitted every 15 minutes, at least, instead of every 5 seconds.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Barnes et al., to combine monitoring intervals of 15, 30, or 60 minutes, as suggested by Barnes et al., with the method of Pandya et al. and Aras et al., with the motivation being to have the monitoring system

take up less network bandwidth since the monitored data must only be transmitted every 15 minutes, at least, instead of every 5 seconds.

5. Claims 12, 38, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al., and in further view of Hanko et al. (U.S. Pat. 6438141).

With respect to claims 12, 38, and 60, the combination of Pandya et al. and Aras et al. does not disclose allocating network access equally to users and allocating extra network access to users proportionally based on a forecasted network access usage.

With respect to claims 12, 38, and 60, Hanko et al., in the field of communications, discloses allocating extra network access to users proportionally based on each user's forecasted network access usage **(See column 11 lines 33-40 and Figure 5 of Hanko et al. for reference to allocating bandwidth to users in an amount requested and then allocating remaining bandwidth proportionally to each user)**. Allocating extra network access proportionally to users based on forecasted network access usage has the advantage of allowing users that require more network access to receive a higher amount of excess network access than users that require less network access.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Hanko et al., to combine allocating extra network access proportionally to users based on forecasted network access usage, as

suggested by Hanko et al., with the method of Pandya et al. and Aras et al., with the motivation being to allow users that require more network access to receive a higher amount of excess network access than users that require less network access.

6. Claims 14, 63, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al., and in further view of Farah (U.S. Pat. 6567418).

With respect to claim 14, the combination of Pandya et al. and Aras et al. does not disclose that the network is a cable network.

With respect to claim 63, Pandya et al. discloses a method of providing network access across a shared communications medium between competing users **(See column 4 lines 22-29 and Figure 2 of Pandya et al. for reference to a method of managing network resources of users across a shared communications medium)**. Pandya et al. also discloses monitoring network access usage by each user during a time interval **(See column 15 lines 46-58 of Pandya et al. for reference to monitoring and reporting the amount of bandwidth used by a user device during a prior time period)**. Pandya et al. further discloses based on the monitoring, forecasting the number of logical data units of each user that will be transmitted over a future time interval **(See column 16 line 29 to column 17 line 4 and Figure 11A of Pandya et al. for reference to based on monitored usage, UB, forecasting that a user can send more logical data units, as in step S6 where it is determined that the used bandwidth and maximum allocated bandwidth are approximately equal**

with the fair share bandwidth being more than the maximum allocated bandwidth, or forecasting that a user will send less logical data units, as in step S8 where it is determined that the used bandwidth is less that the maximum allocated bandwidth). Pandya et al. further discloses based on the forecasting, allocating network access to each for the future time interval **(See column 16 line 28 to column 18 line 17 and Figures 11A-11D of Pandya et al. for reference to methods of dynamically allocated bandwidth to users based on the monitored bandwidth UB and forecasted bandwidth for a future time period).** Pandya et al. does not disclose that the network is a cable network. Pandya et al. does not disclose determining whether the at least one user has been previously assigned a forecast function and, if not, assigning a forecast function to the at least one user.

With respect to claim 63, Aras et al., in the field of communications discloses determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user **(See column 4 line 33 to column 5 line 25 of Aras et al. for reference to using an ARIMA model to predict bandwidth allocations and for reference to if no previous trend data is known, meaning no previous prediction function has been assigned, choosing the terms of the prediction function using trial and error thereby, assigning a prediction function).** Determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user has the advantage of allowing new users to be added to bandwidth prediction calculations dynamically during system operation.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Aras et al., to combine determining whether the a user has been previously assigned a forecast function and, if not, assigning a forecast function to the user, as suggested by Aras et al., with the system and method of Pandya et al., with the motivation being to allow new users to be added to bandwidth prediction calculations dynamically during system operation.

With respect to claim 64, Pandya et al. discloses a method of providing network access across a shared communications medium between competing users **(See column 4 lines 22-29 and Figure 2 of Pandya et al. for reference to a method of managing network resources of users across a shared communications medium)**. Pandya et al. also discloses monitoring network access usage requested by each user during a time interval **(See column 15 line 59 to column 16 line 3 of Pandya et al. for reference to monitoring users' requested bandwidth)**. Pandya et al. further discloses based on the monitoring, forecasting the number of logical data units of each user that will be requested over a future time interval **(See column 16 line 29 to column 17 line 4 and Figure 11A of Pandya et al. for reference to based on monitored usage, UB, forecasting that a user will request to send more logical data units, as in step S6 where it is determined that the used bandwidth and maximum allocated bandwidth are approximately equal with the fair share bandwidth being more than the maximum allocated bandwidth, or forecasting that a user will request to send less logical data units, as in step S8 where it is determined that the used bandwidth is less that the maximum allocated**

bandwidth). Pandya et al. further discloses based on the forecasting, allocating network access to each for the future time interval **(See column 16 line 28 to column 18 line 17 and Figures 11A-11D of Pandya et al. for reference to methods of dynamically allocated bandwidth to users based on the monitored bandwidth UB and forecasted bandwidth for a future time period).** Pandya et al. does not disclose that the network is a cable network. Pandya et al. does not disclose determining whether the at least one user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user.

With respect to claim 39, Aras et al., in the field of communications discloses determining whether a user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user **(See column 4 line 33 to column 5 line 25 of Aras et al. for reference to determining that a previous ARIMA model has been used and for reference to using previous trends to periodically repeat the calculation of ARIMA model function to adjust the terms used in the function based on the latest seasonal information).** Determining whether a user has been assigned a forecast function, if so, determining whether to check for a seasonal cycle related to the user has the advantage of making sure that the seasonal information used to determine a forecast function is up-to-date such that the function used more accurately represents the most current operating environment.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Aras et al., to combine determining whether a user has been assigned a forecast function, if so, determining whether to check for a

seasonal cycle related to the user, as suggested by Aras et al., with the system and method of Pandya et al., with the motivation being to make sure that the seasonal information used to determine a forecast function is up-to-date such that the function used more accurately represents the most current operating environment.

With respect to claims 14, 63, and 64, Farah, in the field of communications, discloses monitoring and managing bandwidth demands for data over a cable TV network using coaxial cables **(See column 1 liens 27-39 of Farah et al. for reference to the cable network)**. Monitoring and allocating bandwidth of a cable network has the advantage of making sure that the users of the cable network each received their fair share of allocated network resources.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Farah, to combine the cable network of Farah with the method of Pandya et al. and Aras et al., with the motivation being to make sure that the users of the cable network each received their fair share of allocated network resources.

7. Claims 26 and 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al. and in further view of Gemar et al. (U.S. Pat. 6483839).

With respect to claims 26 and 55, Pandya et al. discloses minimum levels of network access and prioritizing allocation based on these minimum levels **(See column 21 lines 16-37 and Figure 11A-D of Pandya et al. for reference to setting minimum**

thresholds for bandwidth and giving priority to allocate more bandwidth to a user when the user bandwidth monitored falls below the minimum threshold); however, the combination of Pandya et al. and Aras et al. does not disclose also using maximum burstable data levels to also prioritize users.

With respect to claims 26 and 55, Gemar et al., in the field of communications, discloses using both minimum and maximum burstable network access levels to prioritize users for network access allocation **(See column 4 lines 36-45 and column 19 lines 45-53 of Gemar et al. for reference to adjusting priority levels based on minimum rates and for reference to using a maximum burst state to schedule bandwidth allocations)**. Using both minimum and maximum burstable network access levels to prioritize users for network access allocation has the advantage of making sure each user at least receives the minimum network access allocation while also limiting users from using over a maximum bandwidth during a time period.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Gemar et al., to combine using both minimum and maximum burstable network access levels to prioritize users for network access allocation, as suggested by Gemar et al., with the method of Pandya et al. and Aras et al., with the motivation being to make sure each user at least receives the minimum network access allocation while also limiting users from using over a maximum bandwidth during a time period.

8. Claims 27 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al. and in further view of Hou et al. (U.S. Pat. 6324184).

With respect to claims 27 and 56, the combination of Pandya et al. and Aras et al. does not disclose prioritizing users for network access allocation based on users' fees in decreasing order of fees.

With respect to claims 27 and 56, Hou et al., in the field of communications, discloses prioritizing users for bandwidth allocation based on decreasing order of fees paid by the users **(See column 2 lines 36-56 of Hou et al. for reference to giving priority access to excess bandwidth to users based on the fee that the user pays)**. Prioritizing users for bandwidth allocation based on decreasing order of fees paid by the users has the advantage of providing users that pay more money for network access a higher priority during network access allocation, thereby giving users an incentive to pay a higher fee for access.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Hou et al., to combine prioritizing users for bandwidth allocation based on decreasing order of fees paid by the users, as suggested by Hou et al., with the method of Pandya et al. and Aras et al., with the motivation being to provide users that pay more money for network access a higher priority during network access allocation, thereby giving users an incentive to pay a higher fee for access.

9. Claims 32 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pandya et al. in view of Aras et al. and in further view of Huang et al. (U.S. Pat. 6151852).

With respect to claims 32 and 41, the combination of Pandya et al. and Aras et al. does not disclose using an adaptive-response-rate single exponential smoothing function and a Holt-Winters' seasonal exponential smoothing function.

With respect to claims 32 and 41, Huang et al., in the field of communications, discloses using both an exponential smoothing function and a Holt-Winters smoothing function **(See column 45 line 5 to column 47 line 48 of Huang et al. for reference to using these smoothing function)**. Using both an exponential smoothing function and a Holt-Winters smoothing function has the advantage of providing accurate models to predict future values based on past values.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Huang et al., to combine using both an exponential smoothing function and a Holt-Winters smoothing function, as suggested by Huang et al., with the method of Pandya et al. and Aras et al., with the motivation being to provide accurate models to predict future values of allocated bandwidth based on past values of allocated bandwidth.

Response to Arguments

10. Applicant's arguments filed 8/28/06 have been fully considered but they are not persuasive.

In response to Applicant's argument that Aras et al. does not disclose "determining whether the at least one user has been previously been assigned a forecast function" and "assigning a forecast function to the at least one user", as in claim 1, and also in response to Applicant's argument that Aras et al. does not disclose "determining whether the at least one user has been assigned a forecast function" and "determining whether to check for a seasonal cycle related to the user", as in claim 39, the Examiner respectfully disagrees. As shown in the rejection above, Aras et al. discloses using a seasonal ARIMA forecast model to forecast future bandwidth usage (See column 4 line 33 to column 5 line 25 of Aras et al.). Aras et al. also discloses using prior seasonal information, if available, as a part of forecasting future bandwidth usage. Aras et al. further discloses that initially, there may be an absence of past forecast function trends in order to forecast future bandwidth usage. In such an instance Aras et al. discloses that a new forecast function with terms decided by trial and error is used (See column 5 lines 3-25 of Aras et al.). Therefore, from the teachings of Aras et al., it would have been obvious for one of ordinary skill in the art at the time of the rejection to determine whether a prior forecast function has been assigned, use available season information in foresting future bandwidth usage if a prior forecast function has been assigned, and assign a new forecast function using trial and

error if no prior forecast function has been assigned. Therefore, Aras et al. does disclose the above quoted limitations from claims 1 and 39 and the above rejection under 35 U.S.C. 103 is proper.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E. Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jem

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600